

PATENT
Attorney Docket No. JP920000131US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Noboru KAMijo et al.

Serial No: 09/682,024

Filed: July 11, 2001

For: WRISTWATCH TYPE DEVICE AND
METHOD FOR MOVING POINTER

Examiner: Jean E. LESPERANCE

Art Unit: 2674

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Respectfully submitted,



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Dated: January 18, 2005

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APPEAL BRIEF

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Dear Sir:

The Applicant submits this brief pursuant to 37 C.F.R. §1.192 in furtherance of the Notice of Appeal timely filed in this case on November 18, 2004, setting a two-month shortened statutory period of brief filing expiring January 18, 2005.

Please charge Deposit Account 50-0510 the \$500 fee for filing this Appeal Brief. No other fee is believed due with this Appeal Brief, however, should another fee be required please charge Deposit Account 50-0510.

Real Party In Interest

The real party in interest is International Business Machines Corporation.

Related Appeals And Interferences

None.

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Status of Claims

Claims 1, 3-8, 10-14, 17 and 18 are pending in the present application (see Appendix A for a listing of the claims).

Claims 1, 3-7 and 17 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,137,479 to Olsen et al. ("Olsen"), in view of U.S. Patent No. 6,369,794 to Sakurai et al. ("Sakurai").

Claims 8, 10 and 18 stand rejected under 35 U.S.C. §103(a) as unpatentable over Olsen, in view of U.S. Patent No. 6,111,580 to Kazama et al. ("Kazama").

Claims 11-14 stand rejected under 35 U.S.C. §102(e) as unpatentable over Sakurai.

Status of Amendments

No amendments to the claims were made after the Final Office Action dated August 24, 2004.

Summary of the Invention

The present invention relates to a technique for moving a pointer displayed on a display screen in a wristwatch-type or other portable device. Application, paragraph 2 and Fig. 1. A device incorporating the present invention includes an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself. Application, paragraph 28. The image sensor can be arranged as part of the display so that the image sensor takes images that face the display (such as the user's face when viewing the wristwatch-type device). Application, paragraph 39. The image sensor may be, for example, a charge-coupled device with a resolution of 36 by 36 dots. Application, paragraph 40.

In one embodiment of the invention, a principle image P_{t_0} is taken at time t_0 . Application, paragraph 56. A second image P_{t_1} is taken at a different time t_1 . Id. The two images P_{t_0} and P_{t_1}

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are then compared to determine the displacement of the device. Application, paragraph 60 and Figs. 9a-9d. The image sensor according to the present invention dispenses with a mechanical pointing device such as a conventional button, improves miniaturization and water proofing properties, and avoids smearing the display. Application, paragraph 65.

The invention may also include a display controller for controlling a display position of the pointer on the display screen, a displacement detector for detecting a displacement of the device itself, and a pointer mover for moving the pointer on the display screen based on the detected displacement of the device itself. Application, paragraph 11.

Issues

1. Whether claims 1, 3-7 and 17 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,137,479 to Olsen et al. ("Olsen") in view of U.S. Patent No. 6,369,794 to Sakurai et al. ("Sakurai").

2. Whether claims 8, 10 and 18 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,137,479 to Olsen et al. ("Olsen") in view of U.S. Patent No. 6,111,580 to Kazama et al. ("Kazama").

3. Whether claims 11-14 are unpatentable under 35 U.S.C. §102(e) over U.S. Patent No. 6,369,794 to Sakurai et al. ("Sakurai").

Grouping of Claims

All claims are grouped together for the purpose of this appeal.

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ArgumentI. Olsen and Sakurai do not teach all the limitations of claims 1, 3-7 and 17Claim 1

In rejecting claims under U.S.C. §103, the Examiner bears the initial burden of establishing a *prima facie* case. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ 1443, 1444 (Fed. Cir. 1992). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Claim 1 of the present Application stands rejected as obvious over Olsen in view of Sakurai. Final Office Action, page 2. Claim 1 recites, in part, "an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself." Claim 1, lines 10-12.

The Examiner apparently believes that either Olsen or Sakurai teach an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself, as recited in claim 1. Final Office Action, pages 8-9. Specifically, the Final Office Action states,

The applicant argued that of the prior art, Olsen et al. and Sakurai et al., fail to teach "a displacement detector comprising an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself. Examiner disagrees with the applicant because one of the prior art, Olsen et al., teaches a motion senor in the computer mouse detects the movement of the computer mouse and sends signals to the computer that indicate the direction and the distance the computer mouse moved (column 1, lines 18-22), the watch uses an optical sensor to detects [sic] changes in the image displayed on a computer display screen. The motion encoder 62, detects translation, e.g., the movement of the mouse watch device 54 over a surface. A roller ball 68 is mounted

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on the bottom of the mouse watch device 54 to detect its movement, as it is rolled on a surface (column 5, lines 65-57 and column 6, lines 1-5) means that the optical detector which is in the mouse watch detect the movement or displacement of the mouse watch or itself corresponding to a displacement detector comprising an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself. Sakurai et al. teach motion detecting means for detecting a motion of the operation indication outputting device caused by the user's action column 24, lines 62-64) corresponding to a displacement of the device itself. Final Office Action, pages 8-9 (emphasis in original).

From the above statements, it appears that the Examiner considers either the motion sensor (such a motion encoder) or the optical sensor described in Olsen as an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself. Alternatively, the Examiner contends that the motion detecting means of Sakurai is an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself. Each of these propositions is considered below.

First, as to the Examiner's argument that the motion sensor teaches the image sensor limitations of claim 1, Olsen states,

The motion encoder 24 detects rotation of the roller ball 42 and generates signals that indicate the direction and distance the roller ball 42 moves. Other types of motion sensors may be used in accordance with the present invention. For example, devices such as friction or pressure sensors or a top mounted track ball can control the position of the cursor on the display screen 26. Alternatively, the motion encoder 24 may use optical sensing components. Olsen, col. 3, lines 56-67.

Absent from this or any other discussion of the motion sensor in Olsen is a teaching that the motion sensor senses an image. Furthermore, the Examiner has not produced evidence showing that the motion sensor is analogous to an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself.

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Second, while the Appellant agrees with the Examiner that Olsen discloses an optical sensor, it is respectfully submitted that any conclusion that Olsen processes the image sensed by the optical sensor to obtain a displacement of the device itself is incorrect. Olsen clearly explains, "The watch uses an optical sensor to detect changes in the image displayed on a computer display screen. The changes in the displayed image define the data transferred to the watch." Olsen, col. 1, lines 52-55 (emphasis added). Thus, the optical sensor of Olsen is used to transmit data from a computer to a watch, much like an optical communication port. Furthermore, the Examiner's contention that the image sensed by the optical sensor is somehow processed to obtain a displacement of the watch itself is unsubstantiated by the teachings of Olsen.

Similarly, Sakurai lacks any teaching or suggestion of a displacement detector comprising an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself, as recited in claim 1. Sakurai discloses using acceleration sensors to detect motion of a device. Sakurai, column 7, lines 61-67. By analyzing an acceleration curve output from the acceleration sensors, the device determines whether the user is "swinging" or "tapping" the device. Sakurai, column 8, lines 27-46.

The Appellant respectfully submits that a *prima facie* obviousness rejection, where the prior art references teach or suggest all the claim limitations, has not been established for claim 1. See MPEP S2143. None of the cited references, either alone or in combination, teach or suggest processing an image sensed by an image sensor to obtain a displacement of the device itself, as claimed in claim 1. Therefore, the Appellant submits that the rejection of claim 1 is improper and respectfully requests that the rejection of claim 1 be reversed by the honorable Board.

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Claims 3-7 and 17

If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 3-6 and 17 are dependent on and further limit claim 1. Since claim 1 is believed allowable for the reasons discussed above, claims 3-6 and 17 are also believed allowable for at least the same reasons as claim 1. Therefore, the Appellant respectfully requests that the rejections of claims 3-6 and 17 be reversed by the honorable Board.

II. There is no motivation to combine the teachings of Olsen and Sakurai

In making a *prima facie* obviousness rejection, there must be some evidence, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. See MPEP §2143. "Broad conclusory statements regarding the teachings of multiple references, standing alone, are not 'evidence.'" *In re Dembicziak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir. 1999).

The Examiner offers as motivation of combining the teachings of Olsen with those of Sakurai ". . . because this would allow the user to interact with the GUI without using other means." Final Office Action, page 3. It is respectfully submitted that the Examiner has not provided evidence as to the desirability of making the specific combination that forms the subject matter claimed. Rather, the Examiner has erroneously construed the teaching of Olsen and Sakurai through impermissible hindsight in view of the present disclosure. For at least this reason, the Appellant submits that the rejections of claims 1, 3-6 and 7 are improper and respectfully requests that these rejections be reversed by the honorable Board.

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III. There is no reasonable expectation of success to combine the teachings of Olsen and Sakurai

To make a *prima facie* obviousness rejection, there must be a reasonable expectation of success. See MPEP §2143. It is respectfully submitted no evidence of a reasonable expectation of success has been presented by the Examiner in combining the teachings of Olsen and Sakurai. Moreover, the trackball device of Olsen and the "shake and tap" method of Sakurai may work to counteract each other by potentially moving the a device cursor away from the user's intended position. Thus, for at least this reason, the Appellant submits that the rejections of claims 1, 3-6 and 7 are improper and respectfully requests that these rejections be reversed by the honorable Board.

IV. Olsen and Kazama do not teach all the limitations of claims 8, 10 and 18

Claim 8

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Claim 8 of the present Application stands rejected as obvious over Olsen in view of Kazama. Final Office Action, page 4. Claim 8 recites, in part, "an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself." Claim 8, lines 9-10.

As discussed above, Olsen does not teach an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself, as recited in claim 8. Furthermore, Kazama does not mention or suggest an image sensor, and the Examiner does not argue that Kazama contains such a teaching.

The Appellant respectfully submits that a *prima facie* obviousness rejection, where the prior art references teach or suggest all the claim limitations, has not been established for

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claim 8. See MPEP §2143. None of the cited references, either alone or in combination, teach or suggest processing an image sensed by an image sensor to obtain a displacement of the device itself, as claimed in claim 8. Therefore, the Appellant submits that the rejection of claim 8 is improper and respectfully requests that the rejection of claim 8 be reversed by the honorable Board.

Claims 10 and 18

If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 10 and 18 are dependent on and further limit claim 8. Since claim 8 is believed allowable for the reasons discussed above, claims 10 and 18 are also believed allowable for at least the same reasons as claim 8. Therefore, the Appellant respectfully requests that the rejections of claims 10 and 18 be reversed by the honorable Board.

V. There is no motivation to combine the teachings of Olsen and Kazama

In making a *prima facie* obviousness rejection, there must be some evidence, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. See MPEP §2143. "Broad conclusory statements regarding the teachings of multiple references, standing alone, are not 'evidence.'" *In re Dembicziak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir. 1999).

The Examiner offers as motivation of combining the teachings of Olsen with those of Kazama "... because this would allow the user to input an indication signal by a simple action." Final Office Action, page 5. It is respectfully submitted that the Examiner has not provided evidence as to the desirability of making the specific combination that forms the subject matter

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claimed. Rather, the Examiner has erroneously construed the teaching of Olsen and Kazama through impermissible hindsight in view of the present disclosure. For at least this reason, the Appellant submits that the rejections of claims 8, 10 and 18 are improper and respectfully requests that the honorable Board reverse these rejections.

VI. There is no reasonable expectation of success to combine the teachings of Olsen and Kazama

To make a *prima facie* obviousness rejection, there must be a reasonable expectation of success. See MPEP §2143. It is respectfully submitted no evidence of a reasonable expectation of success has been presented by the Examiner in combining the teachings of Olsen and Kazama. Thus, for at least this reason, the Appellant submits that the rejections of claims 8, 10 and 18 are improper and respectfully requests that the honorable Board reverse these rejections.

VII. Sakurai does not teach all the limitations of claims 11-14

Claim 11

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. *RCA Corp. v. Applied Digital Data Sys., Inc.*, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Claim 11 recites, in part, "using an image sensor to take an image of a physical object facing the device continuously and detecting a relative displacement between the taken object and the display." Claim 11, lines 3-5. Although the Examiner asserts that Sakurai uses an image sensor to detect device displacement,

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it is respectfully submitted that such an assertion is a mischaracterization of Sakurai.

Sakurai discloses using acceleration sensors to detect motion of a device. Sakurai, column 7, lines 61-67. By analyzing an acceleration curve output from the acceleration sensors, the device determines whether the user is "swinging" or "tapping" the device. Sakurai, column 8, lines 27-46. Sakurai makes no mention of using an image sensor to detect device displacement and the Examiner fails to reconcile such an omission in the cited art.

In the Final Office Action, the Examiner merely cites a passage in Sakurai (Sakurai, col. 1, lines 43-48) relating to scrolling text or moving a cursor in a display panel in response to a motion sensor. Final Office Action, page 6. The Examiner explains that scrolling text or moving a cursor in a display panel in response to a motion sensor corresponds to taking an image of a physical object facing the device continuously and detecting a relative displacement between the taken object and the display and changing a display position of the pointer displayed on the display based on the detected displacement. Final Office Action, page 6. Such a conclusion is contradicted by the disclosure of Sakurai and is devoid of any support in the cited art, as discussed above.

The Appellant respectfully submits that a *prima facie* obviousness rejection, where the prior art references teach or suggest all the claim limitations, has not been established for claim 8. See MPEP §2143. None of the cited references, either alone or in combination, teach or suggest processing an image sensed by an image sensor to obtain a displacement of the device itself, as claimed in claim 8. Therefore, the Appellant submits that the rejection of claim 8 is improper and respectfully requests that the rejection of claim 8 be reversed by the honorable Board.

Thus, for at least this reason, it is respectfully submitted that an anticipation rejection has not been established by the

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Examiner for claim 11. Therefore, the Appellant submits that the rejection of claim 11 is improper and respectfully requests that the rejection of claim 11 be reversed by the honorable Board.

Claims 12 and 14

If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 12-14 are dependent on and further limit claim 11. Since claim 11 is allowable over the cited art, claims 12-14 are allowable over the cited art for at least the same reasons as claim 11. Therefore, the Appellant respectfully requests that the rejections of claims 12-14 be reversed by the honorable Board.

Conclusion

In view of the foregoing, Appellant submits that the rejections of claims 1, 3-8, 10-14, 17 and 18 are improper and respectfully requests that the rejections of claims 1, 3-8, 10-14, 17 and 18 be reversed by the honorable Board.

Respectfully submitted,

Dated: January 18, 2005


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Appendix A
Pending Claims

Claim 1. A device providing for a display screen and performing predetermined processing by operating a pointer displayed on the display screen, the device comprising:

5 a display controller for controlling a display position of the pointer on the display screen;

a displacement detector for detecting a displacement of the device itself; and

10 a pointer moving device for moving the pointer on the display screen based on the detected displacement of the device itself, wherein the displacement detector comprising an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself.

Claim 3. The device according to claim 1, wherein the image sensor comprising a complementary metal-oxide semiconductor or a charge coupled device.

Claim 4. The device according to claim 1, wherein the image sensor comprising an infrared sensor.

Claim 5. The device according to claim 1, further comprising an operator for activating the image sensor.

Claim 6. The device according to claim 5, wherein the operator further includes the function for directing a selection of an object pointed to by the pointer or for the execution of predetermined processing defined for the object, whereby the operator has a plurality of functions.

Claim 7. The device according to claim 1, wherein the device is of a wristwatch type.

Claim 8. A wristwatch type device, comprising:

a display for displaying a screen;

a case for supporting the display;

an attached belt attached to the case;

5 a touch sensor mounted in the case or the attached belt for performing a predetermined operation on an object displayed on the

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screen, wherein the touch sensor is provided on both sides of the display; and

10 an image sensor, wherein an image sensed by the image sensor is processed to obtain a displacement of the device itself.

Claim 10. The wristwatch type device according to claim 8, further comprising:

displacement detection section for detecting a displacement of the display; and

5 pointer position changing device for changing a display position of a pointer based on the detected results, thereby moving the pointer displayed on the screen.

Claim 11. A method for moving a position of a pointer displayed in a display of a device, comprising:

a first step of using an image sensor to take an image of a physical object facing the device continuously and detecting a 5 relative displacement between the taken object and the display; and

a second step for changing a display position of the pointer displayed on the display based on the detected displacement.

Claim 12. The method according to claim 11, wherein the first step further comprising the steps of:

calculating a motion vector at a certain place in an image based on the movement of the image that was taken multiple times;

5 and obtaining a relative displacement between the object and the display based on the calculated motion vector.

Claim 13. The method according to claim 12, when moving the device relative to the object, the relative displacement between the object and the display is obtained by inverting a sign of the motion vector.

Claim 14. The method according to claim 11, wherein the first step comprising the steps of:

generating a time-series moving pattern of a certain place based on a position of the certain place in a principal image and a 5 position of a place corresponding to the certain place in a plurality of other images that were taken apart in time from the principal

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image; and

comparing the generated time-series moving pattern with a plurality of model patterns registered in advance to select a most approximate model pattern;

10 wherein the second step comprising the steps of changing a display position of the pointer based on a moving pattern that was defined for the selected model pattern.

Claim 17. The device according to claim 1, wherein the image sensor is located in a part of the display screen.

Claim 18. The wristwatch type device according to claim 8, wherein the image sensor is located in a part of the display.